

**REMARKS**

Claims 1-57 were pending in the present application at the time the Office Action was mailed. Claims 1, 28, 35-37, 41-43, 47, 49 and 53 have been cancelled without commenting on or conceding the merits of the rejections of these claims, and without prejudice to pursuing these claims in one or more continuing, divisional, or other application. Claims 2-27, 29-34, 38-40, 44-46, 48, 50-52 and 54-57 have been amended. More specifically, claims 4, 7, 9, 29, 30, 33, 38, 44, 45, 52, 54 and 55 have been rewritten in independent form to include all the features of the corresponding base claims and any intervening claims. Accordingly, any subsequent rejection of these claims based on new grounds cannot be made final. Claims 2, 3, 5, 6, 8, 10-27, 31, 32, 34, 39, 40, 46, 48, 50, 51, 56 and 57 have been amended to change the dependencies of these claims. New claims 58-66 have been added. Based on the foregoing, claims 2-27, 29-34, 38-40, 44-46, 48, 50-52 and 54-66 are now pending in the present application.

In the present Office Action, claims 1-28, 31-43, 46-51, 53 and 55-57 were rejected; and claims 29, 30, 44, 45, 52 and 54 were objected to as being dependent upon a rejected base claim. More specifically, the status of the claims in light of the present Office Action is as follows:

- (A) The Office Action included an indication that the priority claim was defective;
- (B) Claims 1-14, 17-19, 23-27, 35-39 and 41-43 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,634,598 to Susko ("Susko");
- (C) Claims 28, 31, 32-34, 43, 46-51, 53 and 55-57 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,547,188 to Schmutz et al. ("Schmutz");
- (D) Claims 15, 16, 20-22 and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Susko in view of U.S. Patent No. 6,343,465 to Martinov ("Martinov"); and

(E) Claims 29, 30, 44, 45, 52 and 54 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include all the limitations of the corresponding base claims and any intervening claims.

The undersigned attorney wishes to thank the Examiner for engaging in a telephone conference on April 14, 2005 to discuss the present Office Action. During the course of the telephone conference, the undersigned attorney and the Examiner discussed the distinctions between claims 4, 7, 9 and 33 and the applied references. The following remarks summarize the points raised during the telephone conference and reflect the agreements reached.

A. Response to the Indication of Defective Priority

The Office Action indicates that the present application is attempting to claim the benefit of a prior application that was officially abandoned prior to the filing date of the present application. In response to this assertion, the applicant has elected to amend the priority claim under 37 C.F.R. § 1.78(2). Specifically, the applicant has amended the present application to claim priority to co-pending U.S. Non-Provisional Patent Application Serial No. 10/708,110, which was filed on February 10, 2004.

B. Response to the Section 102 Rejection of Claims 1-14, 17-19, 23-27, 35-39 and 41-43

Claims 1-14, 17-19, 23-27, 35-39 and 41-43 were rejected under 35 U.S.C. § 102(b) as being anticipated by Susko. Claims 1, 35-37 and 41-43 have been cancelled without prejudice. Accordingly, the rejections of these claims are now moot.

Claims 4, 7 and 38 have been rewritten in independent form to include all the features of the corresponding base claims and any intervening claims. In addition, claims 2, 3, 5, 6, 8, 10-14, 17-19, 23-27 and 39 have been amended to depend from one of base claims 4, 7 or 38. For the reasons set forth in detail below, Susko cannot support a

Section 102 rejection of base claims 4, 7 or 38; or dependent claims 2, 3, 5, 6, 8, 10-14, 17-19, 23-27 and 39. Therefore, the rejections of these claims should be withdrawn.

1. Independent Claim 4 is Directed to a Vehicle System Wherein a Controller is Configured to Control Operation of a Flammability Control System at Least Partially in Response to a Temperature Signal Relating to an Air Temperature Outside a Fuel Tank

Independent claim 4 is directed to a vehicle system that includes, *inter alia*, a controller operably coupled to a flammability control system. The flammability control system is configured to suppress the development of flammable vapors in a fuel tank of a vehicle. The controller is configured to control operation of the flammability control system at least partially in response to a temperature signal relating to an air temperature outside the fuel tank.

2. Susko Discloses an Inerting System that Uses an Oxygen Detector to Monitor the Oxygen Partial Pressure of Vapors in a Fuel Tank

Susko discloses an on-board fuel inerting system that uses an oxygen detector to monitor the oxygen partial pressure of vapors in the ullage volume of a fuel tank. As Susko states in reference to Figure 1 "one key aspect of the system of the instant invention is oxygen probe 51 that extends through constant temperature receptacle 59 into fuel tank 11. Probe 51 serves to monitor the oxygen concentration [of] oxygen partial pressure in the fuel tank at all times. Simultaneously, the [temperature] within the fuel tank is monitored by temperature sensor 31 which may be a thermal couple or other typical temperature sensor well-known to those skilled in the art." (Words in brackets added.) Susko goes on to state "when the control system senses that oxygen partial pressure within the tank is approaching a potentially hazardous level in view of tank temperature, the control system can activate the nitrogen supply . . . and can feed nitrogen to the over fuel volume of the tank . . . " (Susko at column 5; lines 47-63.) Thus, Susko teaches a fuel tank inerting system that operates based on the temperature within the tank and the oxygen partial pressure within the tank.

3. Susko Cannot Support a Section 102 Rejection of Independent Claim 4 for at Least the Reason that Susko Fails to Teach or Suggest a Controller that Controls Operation of a Flammability Control System Based on an Air Temperature Outside a Fuel Tank

The controller of claim 4 controls operation of a flammability control system at least partially in response to an air temperature outside a fuel tank. In contrast, the controller 41 of Susko controls operation of the fuel inerting system based on the temperature "within the fuel tank" as monitored by temperature sensor 31. As the Examiner acknowledged during the April 14 telephone conference, Susko cannot support a Section 102 rejection of independent claim 4 for at least this reason. Therefore, the rejection of claim 4 should be withdrawn.

Claims 5, 6, 8, 10-14, 17-19 and 23-27 have been amended to depend from base claim 4. Accordingly, Susko cannot support a Section 102 rejection of these dependent claims for at least the reason that this reference cannot support a Section 102 rejection of corresponding base claim 4, and for the additional features of these dependent claims. Therefore, the rejection of dependent claims 5, 6, 8, 10-14, 17-19 and 23-27 should also be withdrawn.

4. Independent Claim 7 is Directed to a Vehicle System Wherein a Controller is Configured to Control Operation of a Flammability Control System at Least Partially in Response to an Air Pressure Outside a Fuel Tank

Independent claim 7 is directed to a vehicle system that includes, *inter alia*, a controller operably coupled to a flammability control system. The flammability control system is configured to suppress the development of flammable vapors in a fuel tank of a vehicle. The controller is configured to control operation of the flammability control system at least partially in response to a pressure signal relating to an air pressure outside the fuel tank.

5. Susko Cannot Support a Section 102 Rejection of Independent Claim 7 for at Least the Reason that this Reference Fails to Teach or Suggest Controlling Operation of a Flammability Control System in Response to an Air Pressure Outside of the Fuel Tank

The controller of claim 7 controls operation of a flammability control system based at least partially on an air pressure outside the fuel tank. In contrast, the controller 41 of Susko controls operation of the corresponding inerting system based on an internal tank temperature and an oxygen partial pressure. As the Examiner acknowledged during the April 14 telephone conference, Susko cannot support a Section 102 rejection of independent claim 7 for at least this reason. Therefore, the rejection of claim 7 should be withdrawn.

Claims 2 and 3 depend from base claim 7. Accordingly, Susko cannot support a Section 102 rejection of dependent claims 2 and 3 for at least the reason that this reference cannot support a Section 102 rejection of corresponding base claim 7, and for the additional features of these dependent claims. Therefore, the rejection of dependent claims 2 and 3 should also be withdrawn.

6. Independent Claim 38 is Directed to a Method for Controlling a Flammability Control System Wherein Operating the Flammability Control System at a First Level Includes Flowing Inert Gas Into a Fuel Tank at a First Flow Rate, and Wherein Reducing the Operating Level of the Flammability Control System Includes Flowing Inert Gas Into the Fuel Tank at a Second Flow Rate that is Less than the First Flow Rate But Not Zero

Independent claim 38 is directed to a method for controlling a flammability control system that includes, *inter alia*, operating the flammability control system at a first level of operation, and receiving one or more signals relating to a condition of the fuel tank. When the one or more signals correspond to a first level of flammable vapors in the fuel tank, the method further includes continuing to operate the flammability control system at the first level of operation. When the one or more signals correspond to a second level of flammable vapors in the fuel tank that is less than the first level of flammable vapors, the method further includes reducing the operating level of the flammability control system

from the first level of operation to a second level of operation that is less than the first level of operation. Independent claim 38 has been amended to clarify that reducing the operating level of the flammability control system includes flowing inert gas into the fuel tank at a second flow rate that is less than the first flow rate *but not zero*.

7. Susko Cannot Support a Section 102 Rejection of Independent Claim 38 for at Least the Reason that this Reference Fails to Teach or Suggest a Flammability Control System that Varies the Flow of Inert Gas into a Fuel Tank Based on the Level of Flammable Vapors Detected in the Fuel Tank

In the method of claim 38, operating the flammability control system at a first level of operation includes flowing inert gas into the fuel tank at a first flow rate, and reducing the operating level of the flammability control system includes flowing inert gas into the fuel tank at a second flow rate that is less than the first flow rate but not zero. Thus, the method of claim 38 varies the flow rate of inert gas (without stopping the flow of inert gas) based on the level of flammable vapors detected in the fuel tank. In contrast, Susko teaches a flammability control system that is either "off" or "on." For example, in column 5 at lines 58-61, Susko states "when the control system senses that oxygen partial pressure within the tank is approaching a potentially hazardous level in view of tank temperature, the control system can activate the nitrogen supply through the valves discussed above . . ." Thus, once the control system of Susko senses the oxygen partial pressure reaching a certain level, the control system activates the nitrogen supply through the valves. Nowhere does Susko teach that the flow rate through the valves can be adjusted based on the level of flammable vapors detected in the fuel tank. Accordingly, as the Examiner acknowledged during the April 14 telephone conference, Susko cannot support a Section 102 rejection of independent claim 38 for at least this reason. Therefore, the rejection of claim 38 should be withdrawn.

Claim 39 has been amended to depend from base claim 38. Accordingly, Susko cannot support a Section 102 rejection of dependent claim 39 for at least the reason that this reference cannot support a Section 102 rejection of corresponding base claim 38, and

for the additional features of this dependent claim. Therefore, the rejection of dependent claim 39 should also be withdrawn.

C. Response to the Section 102 Rejections of Claims 28, 31, 32-34, 43, 46-51, 53 and 55-57

Claims 28, 31, 32-34, 43, 46-51, 53 and 55-57 were rejected under 35 U.S.C. § 102(b) as being anticipated by Schmutz. Claims 28, 43, 47, 49 and 53 have been cancelled without prejudice. Accordingly, the rejections of these claims are now moot.

Claims 31, 32, 34, 46, 48, 50, 51, 56 and 57 have been amended to change the dependencies of these claims. As amended, these claims now depend from base claim 29, 30, 44, 52 or 54. All of these base claims were indicated to be allowable if rewritten in independent form to include all the features of the corresponding base claims and any intervening claims. As discussed in more detail below, each of these base claims has been rewritten in the stated form. Accordingly, base claims 29, 30, 44, 52 and 54 are now allowable, and dependent claims 31, 32, 34, 46, 48, 50, 51, 56 and 57 are also allowable. Therefore, the rejections of these dependent claims should be withdrawn.

1. Independent Claim 33 is Directed to a Vehicle System in Which a Controller is Configured to Control Operation of a Flammability Control System at Least Partially in Response to a Signal from a Fire Detection Sensor of the Vehicle

Independent claim 33 is directed to a vehicle system that includes, *inter alia*, a controller operably coupled to a flammability control system. The flammability control system is configured to suppress the development of flammable vapors in a fuel tank of a vehicle. The controller is configured to control operation of the flammability control system at least partially in response to a signal from a fire detection sensor.

2. Schmutz Discloses a Device that Controls Operation of a Fuel Tank Inerting System Based on Change in Flight Phase of an Aircraft

Referring to Figure 1 in Schmutz, the device of Schmutz includes a valve 14 that controls the flow of inert gas into a fuel tank 12 in response to control signals from a control member 18. Schmutz describes the operation of his device as follows:

During a phase in question of the flight of the aircraft, the valve 14 has a standard value permitting injecting into the reservoir 12 air enriched in an inert gas, with a predetermined content. Thus, in the take-off and ascent phase of the aircraft, the enriched air emitted into the reservoir 17 via the conduit 10 has, for example, an oxygen content of 2%. During cruise, at a substantially constant altitude, this oxygen content of air enriched in an inert gas is held constant, at 2%. During a change in phase of the flight, the setting applied to the valve 14 is changed. To this end, a control signal 16 of the condition of the valve 14 is directed . . . from the control member 18. Such a signal can, for example, be directed by the pilot, or else be connected to the rate of descent or ascent of the aircraft, or else can be connected to differences of pressure existing between the reservoir 12 and the atmosphere. Once the valve 14 has received this signal, it is automatically operated so as to permit the flow, in the conduit 10, of air enriched in nitrogen, whose content is according to the new setting.

(Schmutz at columns 3 and 4; lines 54-8.) As this passage makes clear, the device taught by Schmutz controls operation of the fuel tank inerting system based on the flight phase of the aircraft.

3. Schmutz Cannot Support a Section 102 Rejection of Independent Claim 33 For at Least the Reason that this Reference Fails to Teach or Suggest Controlling Operation of a Flammability Control System at Least Partially in Response to a Signal from a Fire Detection Sensor

The controller of claim 33 controls operation of the flammability control system at least partially in response to a signal from a fire detection sensor. In contrast, the device taught by Schmutz controls operation of a fuel tank inerting system in response to a flight phase of the aircraft. Accordingly, as the Examiner acknowledged during the April 14



telephone conference, Schmutz cannot support a Section 102 rejection of independent claim 33 for at least this reason. Therefore, the rejection of claim 33 should be withdrawn.

4. Schmutz Cannot Support a Section 102 Rejection of Independent Claim 55 For at Least the Reason that this Reference Fails to Teach or Suggest a Flammability Control System that Receives a Temperature Signal Relating to an Air Temperature Outside the Fuel Tank

Independent claim 55 is directed to a flammability control system that includes, *inter alia*, means for receiving one or more signals relating to at least one of a condition of a fuel tank and an operational phase of the vehicle. Further, the means for receiving specifically include means for receiving a temperature signal relating to an air temperature outside the fuel tank. Nowhere does Schmutz teach or suggest this feature. In contrast, as discussed above, the flammability control system of Schmutz operates based on the flight phase of the aircraft, not air temperature. Accordingly, Schmutz cannot support a Section 102 rejection of independent claim 55 for at least this reason, and the rejection should be withdrawn.

D. Response to the Section 103 Rejections of Claims 15, 16, 20-22 and 40

Claims 15, 16, 20-22 and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Susko in view of Martinov. Claims 15, 16 and 20-22 depend from base claim 4, and claim 40 depends from base claim 38. Susko cannot support a Section 103 rejection of base claims 4 and 38 for at least the reasons discussed above with regard to the Section 102 rejection of these claims. Further, Martinov fails to cure the deficiencies of Susko. At most, as the Office Action notes, Martinov teaches that it is well-known in the art to use bleed air for fuel tank inerting. Accordingly, the combination of Susko and Martinov, either alone or in combination, cannot support a Section 103 rejection of dependent claims 15, 16, 20-22 and 40. Therefore, the rejection of these dependent claims should be withdrawn.

E. Response to the Objection to Claims 29, 30, 44, 45, 52 and 54

Claims 29, 30, 44, 45, 52 and 54 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form to include all the features of the corresponding base claims and any intervening claims. Claims 29, 30, 44, 45, 52 and 54 have been rewritten in the stated form without commenting on or conceding the merits of the objections to these claims. Accordingly, the objections to claims 29, 30, 44, 45, 52 and 54 should be withdrawn.

F. New claims 58-66

New dependent claims 58-66 are directed to subject matter disclosed in the present application. Claims 58-62 depend from base claim 9, claims 63 and 64 depend from base claim 33, claim 65 depends from base claim 45, and claim 66 depends from base claim 55. Base claims 9, 33, 45 and 55 are allowable for at least the reasons set forth above. Accordingly, dependent claims 58-66 are also allowable for at least this reason, and for the additional features of these dependent claims.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant encloses check to cover all fees due at this time. However, if any additional fee is due, please charge our Deposit Account No. 50-0665, under Order No. 030048123US from which the undersigned is authorized to draw.

Dated: April 25, 2005

Respectfully submitted,

By 

Stephen E. Arnett

Registration No.: 47,392

PERKINS COIE LLP

P.O. Box 1247

Seattle, Washington 98111-1247

(206) 359-8000

(206) 359-7198 (Fax)

Attorney for Applicant